REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of the Claims

Claims 1, 4-6, 9-13, and 16-20 are currently being amended. The features of the amended claims are supported by the disclosure in the Original Specification, for example at page 21, lines 22-25. Claims 28-30 are added. The features of the new claims are supported by the disclosure in the Original Specification, for example at Fig. 10, and page 21, lines 8-27. Thus, no new matter is added. Claims 2, 14, 21 and 22 were cancelled without disclaimer or prejudice.

Claims Rejections under 35 U.S.C. 103

Claims 1, 3-8, 11-13, 15-20 and 23-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi et al. (U.S. Patent No. 6,632,776; hereinafter Kobayashi) in view of Snitchler et al. (U.S. Patent No. 6,393,690; hereinafter Snitchler). Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Snitchler et al. further in view of Jin et al. (U.S. Patent No. 4,952,554; hereinafter Jin). Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Snitchler et al. further in view of Hikata et al. (U.S. Patent No. 5,236,891; hereinafter Hikata) These rejections are respectfully traversed.

Claim 1, as amended recites, a method of manufacturing an oxide superconducting wire that includes, among other features:

> a heat treatment by heat-treating said wire in a pressurized atmosphere having a total pressure of at least 1 MPa and less than 50 MPa in the heat treatment, wherein
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> pressurization is started from a temperature reducing 0.2 % yield strength of said metal below said total pressure at a heat-up time before the heat treatment; and
>
> wherein the pressurization of the atmosphere is continuously increased for the duration of the heat treatment at a speed of at least 0.05 MPa/min. (*Underline added for emphasis*)

The references of record fail to teach or suggest, pressurization of the atmosphere being continuously increased for the duration of the heat treatment at a speed of at least 0.05 MPa/min. (Claims 11, 13 and 19 recite similar features) With regard to the speed of the pressurization, the Office Action dated June 18, 2010 states that, "it is the opinion of the Examiner that in the absence of a teaching of a specific speed of pressurization it is assumed that the pressure would increase with the temperature." (Page 8, lines 18-22) With regard to the pressure increasing with the temperature, in the embodiments of the present invention, the temperature of the atmosphere during heat treatment is maintained (claims 28 and 29). Nonetheless, during the heat treatment, when the temperature is unchanged, the pressure is continuously increased.

Kobayashi teaches keeping the pressure constant during the heat treatment on numerous instances. Moreover, the system of Kobayashi discloses mechanisms that would aid in keeping the pressure constant, i.e., exhaust valve 2 to discharge gas from the pressure furnace. (Column 6, lines 55-61) Kobayashi specifically discloses, "controlling the total pressure in the pressure furnace 1 and maintaining the same at a constant value by the pressure regulator 3." (Column 7, lines 17-21) Kobayashi teaches a first heat treatment occurring on samples 1-13 where the pressure for each respective sample is 0.1, 0.2, 0.3, 0.4, or 20 MPa for 50 hours. (Column 8, Table 1) Kobayashi teaches, "the total pressure of the pressurized atmosphere is kept at least 0.5 MPa." (Column 5, lines 15-19) If the pressure is changed, due to a change in temperature Kobayashi **describes structures** (e.g. exhaust valve 2, and regulator 3), that can release the pressure and maintain a constant pressure. Kobayashi fails to teach or suggest, pressurization of the atmosphere is continuously increased for the duration the heat treatment at a speed of at least 0.05 MPa/min. Therefore, Kobayashi fails to teach or suggest at least the above recited features of claims 1, 11, 13 and 19. Moreover, new dependent claims recite changing the pressure during the heat treatment, while the temperature remains constant. (Claims 28 and 29)

Snitchler discloses a high pressure oxidation treatment at 500 °C for 20 hours at 100 atm. (Column 15 lines 55-62) Snitchler disclose maintaining the pressure of the atmosphere at 100 atm for 20 hours. Snitchler does not teach, pressurization of the atmosphere being continuously increased for the duration of the heat treatment at a speed of at least 0.05 MPa/min. Therefore, Snitchler does not address the above noted distinctions between the present claims and Kobayashi. Accordingly, the Examiner's proposed combination of

Kobayashi and Snitchler fails to teach at least the above recited features of claims 1, 11, 13 and 19.

Jin discloses, "all of this [heat] treatment was carried out in about 1 atm of flowing O_2." (Column 8, lines 35-38) Accordingly, Jin fails to teach or suggest the features of claims 1, 11, 13 and 19, i.e. pressurization of the atmosphere is continuously increased for the duration of the heat treatment at a speed of at least 0.05 MPa/min.

Similarly, Hikata et al. teaches heat treating under a decompressed or reduced pressure of not more than 1 atm. (Abstract and Column 1, lines 55-64) Accordingly, Kobayashi, Snitchler, Jin and Hikata et al., alone or in combination fail to teach or suggest the features of claims 1, 11, 13 and 19. Each of claims 1, 11, 13 and 19 is, therefore, patentably distinguished from the references of record and in condition for allowance.

Because claims 3-10, 15, 23, and 25-27 depend from claim 1, they are believed to be allowable at least for the same reasons claim 1 is believed to be allowable as well as additional reasons apparent from the language of those dependent claims. Claims 12 and 24 depend from claim 11, they are believed to be allowable at least for the same reasons claim 11 is believed to be allowable as well as additional reasons apparent from the language of those dependent claims. Claims 16-18 depend from claim 13, they are believed to be allowable at least for the same reasons claim 13 is believed to be allowable as well as additional reasons apparent from the language of those dependent claims. Claim 20 depends from claim 19, it is believed to be allowable for at least the same reasons claim 20 is believed to be allowable as well as additional reasons apparent from the language of the dependent claim.

New Claims

New claims 28-30 are added to further protect aspects of the method of manufacturing an oxide superconducting wire. New claims 28-30 are each dependent on independent claim 1. Accordingly, each new claim 28-30 is patentably distinguishable over the references of record, at least for reasons as discussed above with respect to claim 1. In addition each new claim 28-30 is further distinguished from the references of record.

For example, new claim 28 depends on claim 1, and incorporates every feature of the parent claim and further recites, the heat-up time spans a period of time where the

temperature of the atmosphere is increased, the heat treatment spans a period of time after the heat-up time and during the heat treatment the temperature of the atmosphere is maintained at about 830°C; wherein the pressurization in the atmosphere is continuously increased during the heat treatment while the temperature of the atmosphere is maintained. As discussed above regarding claim 1, Kobayashi, Snitchler, Jin and Hikata, alone or in combination, fail to teach, suggest or render predictable continuously increasing the pressure during the heat treatment while the temperature of the atmosphere is maintained. Instead, the references of record teach maintaining the pressure constant during heat treatment, which occurs after a heat-up time.

For example, new claim 29 is dependent on claim 1, and incorporates every feature of claim 1 and further recites, the heat treatment occurs after the heat-up time and the pressurization of the atmosphere is continuously increased while the temperature of the atmosphere remains constant during the heat treatment. As discussed above regarding claim 1, Kobayashi, Snitchler, Jin, and Hikata, alone or in combination, fail to teach, suggest or render predictable continuously increasing the pressure during the heat treatment while the temperature of the atmosphere is maintained constant.

For example, new claim 30 is dependent on claims 1 and 29, and incorporates every feature of claims 1 and 29 and further recites, the temperature of the atmosphere is continuously increased during the heat-up time. As discussed above regarding claim 1, . Kobayashi, Snitchler, Jin and Hikata, alone or in combination, fail to teach, suggest or render predictable continuously increasing the pressure during the heat treatment at a speed of at least 0.5 MPa/min.

Concluding Remarks

After amending the claims as set forth above, claims 1, 3-13, 15-20 and 23-30 are now pending in this application.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 9/16/10

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